REMARKS

Claims 1-6, 8-21, and 23 were originally pending. Claims 16-17, 19-21, and 23 have been amended. Claim 12 has been canceled. No claims have been added. Accordingly, claims 1-6, 8-11, 13-21, and 23 remain pending. Withdrawal of the outstanding claim objections and rejections to the pending claims is respectfully requested in view of the following remarks.

Claim Objections

Claim 12 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 11. Claim 12 has been canceled.

35 USC §101 Rejections

Claims 16-21, and 23 stand rejected under 35 USC §101. Specifically, section 4 of the Action asserts that "the claimed invention is directed to non-statutory subject matter because they are lacking utilities. (i.e., the computer program must be stored in a computer readable medium, and executed by a computer element to perform control of a technical procedure)."

Referring to pre-amended **claim 16**, the preamble of claim 16 read "[a] computer-readable storage medium comprising **computer-executable** instructions to manage a run queue sorted with to one another based on thread priority". [Emphasis added]. Thus, it is clear that the computer-readable medium of pre-amended claim 16, which included computer-executable instructions, was direct to statutory subject matter. However, Applicant has amended the preamble of claim 16 to more particularly point out the statutory basis of the claimed subject matter. More particularly, claim 16, as amended, recites in part: "A computer-readable

storage medium comprising computer-program instructions to manage a run queue sorted with to one another based on thread priority, the computer-program instructions being executable by a processor for [...] associating the second plurality of threads with the run queue in a manner that maintains a priority based scheduling semantic of the run queue."

Accordingly, withdrawal of the 35 USC §101 rejection of claim 16 is respectfully requested.

Claims 17-21 defend from claim 16 and are also directed to statutory subject matter solely by virtue of this dependency. Accordingly, withdrawal of the 35 USC §101 rejection of claims 17-21 is respectfully requested.

Claim 23, as amended, recites: "[a] computer-readable medium comprising computer-program instructions executable by a processor for: managing a run queue with a run queue data structure, the run queue data structure comprising: a first dimension data field comprising a first plurality of threads sorted with respect to thread priority; and a second dimension data field comprising a second plurality of threads sorted based on thread priority, the second plurality of threads comprising a root thread and one or more other threads." The claimed "computer-program instructions executable by a processor" perform a technical procedure of "managing a run queue". Accordingly, claim 23 is directed to statutory subject matter.

In view of the above, withdrawal of the 35 USC §101 rejection of claim 23 is respectfully requested.

35 USC §112, Second Paragraph, Rejections

Claims 17-21 stand rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16, upon which claims 17-21 depend, has been amended to provide antecedent basis for the phrase "the first plurality" as used by claims 17-21. Claims 19 and 21 have been amended to change the phrase "the first plurality" to "the first plurality of threads".

In view of these claim amendments, withdrawal of the 35 USC §112, second paragraph, rejection of claims 17-21 is respectfully requested.

35 USC §103(a) Rejections

Claims 1-6, 8-21, and 23 stand rejected under 35 USC §103(a) as being unpatentable over US patent number 6,609,161 to Young. These rejections are traversed.

Claim 1 recites "the method for managing a run queue comprising a first plurality of threads sorted with respect to one another based on thread priority", and "in a deterministic amount of time equivalent to an amount of time to insert a single thread into the run queue, associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue." The Action rejects claim one on the same basis that it rejects claim 23. More particularly, the Action asserts that these features are taught by Young at column 2, lines 25-29, the abstract, and component 275 of Fig. 3B. Applicant respectfully disagrees.

Young at col. 2, lines 25-29, describes "a command block execution queue" that "includes a plurality of command blocks in a first linked list". Applicant respectfully submits that the command block execution queue of Young is not "a run queue", as claim 1 recites. It is well-known that "a run queue" is a queue used to maintain one or more threads of a computer-program (process) executing on a computing device. Each thread is a flow of control through the process. Young's command block execution queue is not a run queue. Young, at column 2, lines 63-64, explicitly describes that "[e]ach command block includes a command for target device". Young describes at column 1, lines 12- 16, that it example of such a control block is a SCSI command block (SCB) used to transfer information between a software host adapter bus driver and a peripheral device. Examples of SCSI commands include, for example, rewind, write, compare, verify, etc.. Information for transfer between a bus driver and a peripheral device is not a thread of a computer-program executing on a computing device. Thus, Young's command block execution queue does not teach or suggest "a run queue" as claim 1 recites.

The Action does not combine Young with any other reference in this 35 USC §103(a) rejection of claim 1. Since Young does not teach or suggest each and every element of claim 1, the features of claim 1 are not obvious in view of Young.

For this reason alone, the 35 USC §103(a) rejection of claim 1 is improper and should be withdrawn.

Additionally, claim 1 includes further futures that are not taught or suggested by Young.

For example, claim one also recites "associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue". The Action asserts that this feature is taught by Young at column 2, lines 30-35, Fig. 3B (components SCBs 34, 167, 5, 270A-272A, and column 8, lines 30-36. Applicant respectfully disagrees.

Young at column 2, lines 30-35, describes that the command block execution queue includes additional command blocks in a second linked list. Young describes how the first and second linked lists of command blocks are associated with one another. The additional cited portions of Young teach further aspects of these command blocks. For the reasons already discussed, a command block execution queue and its corresponding command blocks do not teach or suggest "threads", as claim 1 recites. It is well-known that a thread is a flow of control through a computer-program executing on a computing device. A control block encapsulating a SCSI command for a peripheral device does not teach or suggest a flow of control through a computer-program executing on a computing device. For this additional reason, and regardless of the number and configuration of command block linked lists that make up the command block execution queue, the system of Young may never "associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue", as claim 1 recites.

Accordingly, and for these additional reasons, the 35 USC §103(a) rejection of claim 1 should be withdrawn.

In another example, the Action admits that Young does not teach "in a deterministic amount of time equivalent to an amount of time to insert a single

thread into the run queue", as claim 1 recites. To supply this feature conceded as missing, the Action asserts that since Young teaches appending the target queue with SCSI control blocks, that it would have been obvious to have recognized that the time required to associate/insert the plurality of threads in the run queue is equivalent to insert in a single thread in the run queue because only a single thread is being inserted. Applicant disagrees for the reasons already discussed. Young's SCSI command execution queue is not a "run queue", and Young's SCSI command blocks are not "threads". Young is completely silent (does not teach or suggest) any "run queue" for managing "threads".

For these additional reasons, withdrawal of the 35 USC §103(a) rejection of claim 1 is respectfully requested.

Claims 2-6 depend from claim 1 and are allowable over Young solely by virtue of this dependency. Accordingly, withdrawal of the 35 USC §103(a) rejection of claims 2-6 is respectfully requested.

Claim 8 recites "[a] system for managing a run queue, the run queue comprising a first plurality of threads, each thread in the first plurality of threads having a respective priority, the first plurality of threads being sorted such that a thread having a high priority is removed from the run queue before a thread having a lower priority", and "in an amount of time to insert a single thread into the run queue, associating the second plurality of threads that is priority sorted with the run queue, the associating maintaining a priority based scheduling semantic of the run queue." For the reasons already discussed, Young does not teach or suggest these claimed features. Accordingly, withdrawal of the 35 USC §103(a) rejection of claim 8 is respectfully requested.

Claims 9-11 and 13-15 depend from claim 8 and are allowable over Young solely by virtue of this dependency. Accordingly, withdrawal of the 35 USC §103(a) rejection of claims 9-11 and 13-15 is respectfully requested.

Claim 16 recites "computer-program instructions to manage a run queue of executable threads sorted with respect to one another based on thread priority", and "in a deterministic amount of time that is independent of the number of threads in a second plurality of threads that is priority sorted, the deterministic amount of time being a time to insert a single thread into the run queue, associating the second plurality of threads with a first plurality of threads in the run queue in a manner that maintains a priority based scheduling semantic of the run queue." For the reasons already discussed, Young does not teach or suggest these claimed features. Accordingly, withdrawal of the 35 USC §103(a) rejection of claim 16 is respectfully requested.

Claims 17-21 depend from claim 16 and are allowable over Young solely by virtue of this dependency. Accordingly, withdrawal of the 35 USC §103(a) rejection of claims 17-21 is respectfully requested.

Claim 23 recites "managing a run queue with a run queue data structure, the run queue data structure comprising: a first dimension data field comprising a first plurality of threads sorted with respect to thread priority", and "a second dimension data field comprising a second plurality of threads sorted based on thread priority, the second plurality of threads comprising a root thread and one or more other threads." For the reasons already discussed, Young does not teach or suggest these claimed features.

Accordingly, withdrawal of the 35 USC §103(a) rejection of claim 23 is respectfully requested.

Conclusion

Pending claims 1-6, 8-11, 13-21, and 23 are in condition for allowance and action to that end is respectfully requested. Should any issue remain that prevents allowance of the application, the Office is encouraged to contact the undersigned prior or issuance of a subsequent Office action.

Respectfully Submitted,

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